

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Bernd ULLMANN et al.

Examiner: Mark Halpern

Serial No.: 10/594,753

Group Art Unit: 1741

Filed: May 22, 2008

Title: PAPERS PROVIDING GREAT FAT AND OIL PENETRATION RESISTANCE,  
AND METHOD FOR THE PRODUCTION THEREOF

**BRIEF ON APPEAL UNDER 37 C.F.R. §41.37**

**MAIL STOP: APPEAL BRIEF - PATENTS**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

Further to the Notice of Appeal filed April 21, 2011, attached herewith is Appellants' Brief on Appeal, pursuant to 37 CFR §41.20(b)(2). This is an appeal from the decision of the Examiner finally rejecting claims 1-4, 7, 9-11, 17-19, and 22-26 in the Office Action issued December 29, 2011.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

**(I) REAL PARTY IN INTEREST**

The application is assigned of record to Fahrbrücke Papier GmbH and Kuraray Europe GmbH who are the real parties in interest herein. The assignments are recorded at Reel 020984/Frame 0957 and Reel 024339/Frame 0981.

## **(2) RELATED APPEALS AND INTERFERENCES**

Appellants, their legal representative and the assignee are not aware of any related appeals or interferences which will directly affect, or be directly affected by, or have a bearing on the Board's decision in the instant appeal.

## **(3) STATUS OF THE CLAIMS**

Claims rejected: 1-4, 7, 9-11, 17-19, and 22-26;

Claims allowed: None;

Claims canceled: 5, 6, and 8;

Claims withdrawn: 12-16, 20 and 21;

Claims objected to: None;

Claims on Appeal: 1-4, 7, 9-11, 17-19, and 22-26. A copy of the claims on appeal is provided in the attached Claim Appendix.

## **(4) STATUS OF AMENDMENTS AFTER FINAL**

No amendments were presented subsequent to the Final Office Action issued December 29, 2011.

Subsequent to the Final Office Action issued December 29, 2011, appellants did file a Reply under 37 CFR 1.116 on March 29, 2011. However, no amendments were presented in this Reply.

## **(5) SUMMARY OF THE CLAIMED SUBJECT MATTER**

As set forth in the sole independent claim 1, the invention relates to an impregnated paper having a high penetration resistance to fats and oils. See, e.g., page 4, lines 4-10. The paper comprises paper produced from strongly beaten pulps with a degree of beating of 15<sup>0</sup>SR to 90<sup>0</sup>SR, and internally sized with alkenyl succinic anhydride and/or alkyl ketene dimers (AKD) and/or resin sizes. See, e.g., page 4, lines 21-31 and original claim 1. The paper is further impregnated with an impregnating liquor containing a binder system of 80 to 100 parts by mass of water-soluble binders and 20 to 0 parts by mass of water-insoluble

polymers in dispersion. See, e.g., page 5, lines 17-23 and original claim 1. The water-soluble binders are selected from ethylene-vinyl alcohol copolymers, acetalized ethylene-vinyl alcohol copolymers, acetalized polyvinyl alcohols, polyvinyl butyrals, cationically modified polyvinyl alcohols containing silanol groups, acetalized cationically modified polyvinyl alcohols containing acetalized silanol groups, polyvinyl alcohols containing carboxyl groups, and mixtures thereof. See, e.g., page 5, lines 25-37 and original claim 4.

#### **(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

The grounds of rejections on Appeal are:

- (1) whether claims 1-4, 7, 9-11, 17-19, and 22-26 are indefinite under 35 USC 112, second paragraph;
- (2) whether claims 1-4, 7, 9-11, 17-19, and 22-26 are anticipated under 35 USC 102(b) in view of Schoeller et al. (EP 0 545 043); and
- (3) whether claims 1-4, 7, 9-11, 17-19, and 22-26 are obvious under 35 USC 103(a) in view of Schoeller et al. (EP 0 545 043).

#### **(7) APPELLANTS' ARGUMENTS**

##### **I. Rejection under 35 USC 112, second paragraph**

Claims 1-4, 7, 9-11, 17-19, and 22-26 are rejected as being indefinite under 35 USC 112, second paragraph. In the rejection it is argued that claim 1 recites both the broad term "water-soluble binders" and narrower terms within this broader term, i.e. "ethylene-vinyl alcohol copolymers, acetalized ethylene-vinyl alcohol copolymers, ..., polyvinyl alcohols containing carboxyl groups, and mixtures thereof." Contrary to the assertion in the rejection, this language does not render the claim indefinite.

The language in question properly sets forth a Markush group that defines the literal scope of "water-soluble binders" in the claim. See, for example, MPEP 2173.05(h) Alternative Limitations. Furthermore, it is noted that members of a Markush group may overlap. For example, it is permissible for the members of a Markush group to include both halogen and chloro, even though "halogen" is generic to "chloro." Here again, see MPEP

2173.05(h).

In any event, the language of claim 1 is clear. The claim expressly states that the water-soluble binders are selected from ethylene-vinyl alcohol copolymers, acetalized ethylene-vinyl alcohol copolymers, acetalized polyvinyl alcohols, polyvinyl butyrals, cationically modified polyvinyl alcohols containing silanol groups, acetalized cationically modified polyvinyl alcohols containing acetalized silanol groups, polyvinyl alcohols containing carboxyl groups, and mixtures thereof. Thus, one of ordinary skill in the art to can readily determine whether a given embodiment is within is outside the literal scope of the claim. Nothing more is required under the statute.

In the Final Office Action issued December 29, 2010, the Examiner responded to appellants' arguments by simply stating that the rejection is proper. See page 5 of the Final Office Action. However, this response does not explain why the objected to language is not a proper Markush group as described in MPEP §2173.05(h).

The rejection refers to the MPEP §2173.05(c). This section of the MPEP is entitled "Numerical Ranges and Amounts Limitations", and states that "Use of a narrow numerical range that falls within a broader range in the same claim may render the claim indefinite when the boundaries of the claim are not discernible." The examples of such indefinite ranges given in the MPEP are "(A) 'a temperature of between 45 and 78 degrees Celsius, preferably between 50 and 60 degrees Celsius'; and (B) 'a predetermined quantity, for example, the maximum capacity.'"

The objected to language in appellants' claims is **neither** a numerical range nor an amount. **Thus, MPEP §2173.05(e) does not apply.** Further, appellants' claims do not recite the language "preferably" or "for example," as presented in the indefinite examples given in MPEP §2173.05(c).

The rejection also cites the decision in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), wherein the Board stated that "We do not consider the term 'optionally' to always result in the same degree of variability or indefiniteness as might result from the use of the phrase 'such as.'" Appellants' claims do not recite the phrase "such as." Appellants' claim 1 states what "said water-soluble binders are," not what they may be.

The rejection also cites the decisions in *Ex parte Steigerwald*, 131 USPQ 74 (Bd. App. 1861), *Ex parte Hall*, 88 USPQ 38 (Bd. App. 1948), and *Ex parte Hasche*, 86 USPQ 481 (Bd.

App. 1949). In *Steigerwald* the Board stated that “The ‘such as’ clause is improper in claims 5 to 11.” *Steigerwald* at 75. As mentioned above, appellants’ claims do not recite the phrase “such as.”

In *Hall*, the Board sustained the Examiner’s rejections that the phrases “such as urea formaldehyde glue” and “mineral wool such as rock wool or asbestos” to be indefinite. *Hall* at 39. As mentioned above, appellants’ claims do not recite the phrase “such as.”

In *Hasche*, the Board sustained the Examiner’s rejections that the phrases “which may be” and “such, for example as” as failing to properly define the claimed subject matter. *Hasche* at 482. Appellants’ claims do not recite the phrases “which may be” or “such, for example as”.

In the Advisory Action issued April 6, 2011, the Examiner again asserted that the rejection was “proper” and simply again stated that the claims contain a broad recitation of water-soluble binder and a narrower recitation of certain classes of water-soluble binders.

The language objected to in appellants’ claims is proper Markush language. The language in question properly sets forth a Markush group that defines the literal scope of “water-soluble binders” in the claim. The language of claim 1 is sufficiently clear so that one of ordinary skill in the art can readily determine whether a given embodiment is within or outside the literal scope of the claim. Nothing more is required under the statute. Reversal of the rejection is respectfully requested.

## **II. Rejection under 35 USC 102(b) in view of Schoeller et al.**

Claims 1-4, 7, 9-19, and 22-26 are rejected as being anticipated in view of Schoeller et al. (EP 0 545 043).

Firstly, appellants note that this rejection as presented in the Final Office Action issued December 29, 2011 was also applied against withdrawn claims 12-16. Appellants requested clarification, and in the Advisory Action issued April 6, 2011, the Examiner acknowledged that withdrawn claims 12-16 should not have been included in the rejection.

In general, Schoeller et al. disclose a base paper for use in photographic supports. The paper is made from recycled material or a mixture of recycled material and standard cellulose or photo cellulose. The pulp contains 5-100% recycled material. See the disclosure bridging pages 3-4 of the translation provided by the Examiner.

In Examples 1 and 3 (pages 8-12 of the translation), Schoeller et al. produce heavy base paper stock from fibrous material mixtures (the mixtures are described in Tables 1 and 3) which are said to be beaten to a freeness value of 35SR. See also the cellulose mixture of Comparative Example 1 (page 12 of the translation).

At pages 5-6 of the translation, Schoeller et al. disclose that the paper core can be sized. For neutral sizing, Schoeller et al. disclose that the sizing agents can be dimerized alkyl-chains with cationic resins, epoxidized fatty acid amides, fatty acid anhydrides, or an alkyl succinic anhydride. In Example 1, the neutral sizing agents include, inter alia, alkyl chain dimer (see page 8 of the translation).

In the rejection, it is argued that Schoeller et al. disclose impregnating paper with a "water-soluble binder," referring to pages 5-6 and Examples 1-3 (pages 8-12) of the English translation of Schoeller et al. The only reference by Schoeller et al. to polyvinyl alcohol is in Example 3 (page 12), where it is stated:

"The paper was in likewise a known way surface-sized with a solution, which contained 3.45% by weight polyvinyl alcohol, 4% by weight  $\text{CaCl}_2 \times 2\text{H}_2\text{O}$  and 0.53% by weight of fluorescent bleaching agent."

This reference to polyvinyl alcohol does not mention impregnation of the paper.

The disclosure by Schoeller et al. regarding using polyvinyl alcohol to surface-size a paper does not describe or suggest impregnating a paper with an impregnating liquor containing a binder system with 80 to 100 parts by mass water-soluble binders, in accordance with appellants' claimed invention. Firstly, surface sizing refers to a surface treatment, i.e., the paper is sized on the surface. See, also, for example, Koskinen et al., WO 2004/111336 (submitted with Reply file March 29, 2011), which describes a paper comprising a base paper and a surface size layer comprising an inorganic pigment and polyvinyl alcohol (PVA). The rejection does not indicate how such a surface treatment suggests impregnation of the paper with a water-soluble binder.

Sizing at the surface does not suggest impregnating the paper in accordance with appellants' claimed invention. With impregnation, the water-soluble binder actually penetrates the paper and thus provides higher fat and oil penetration resistance than surface sizing.

As noted above, Schoeller et al. disclose a base paper for use in photographic supports.

To readily absorb the water-based inks, a photographic paper will need to be hydrophilic. Conversely, fat and oil penetration resistant paper should be hydrophobic in order to withstand the hydrophobic fat and oil. Thus, Schoeller et al.'s disclosure, directed towards producing a base paper for use in photographic supports, does not suggest taking steps to render the paper more hydrophobic in order to be resistant to fat and oil penetration.

In the Advisory Action, the Examiner argues that the claims do not recite penetration resistance to fats and oils (see, however, appellants' claim 22), and that penetration resistance to fats and oils is a method, not a structural limitation. Regardless of whether the body of appellants' claim 1 recites resistance to fats and oils, the different functionality of the paper disclosed by Schoeller et al. would not lead one to modify the paper so as to be impregnated with certain water-soluble binders that will increase the paper's resistance to penetration by fats and oils. As for penetration resistance to fats and oils being a method, no rationale is presented with regards to this assertion. Penetration resistance to fats and oils is a physical property of the paper and thus results from the composition/structure of the paper, not from a method of using the paper.

Secondly, while polyvinyl alcohol is a water-soluble polymer, it is not one of the water-soluble binders recited in appellants' claim 1. Thus, even if Schoeller et al. disclosed impregnating the paper with polyvinyl alcohol, this would not describe or suggest impregnating the paper with a water-soluble binder selected from ethylene-vinyl alcohol copolymers, acetalized ethylene-vinyl alcohol copolymers, acetalized polyvinyl alcohols, polyvinyl butyrals, cationically modified polyvinyl alcohols containing silanol groups, acetalized cationically modified polyvinyl alcohols containing acetalized silanol groups, polyvinyl alcohols containing carboxyl groups, and mixtures thereof. The rejection fails to demonstrate where Schoeller et al. disclose or even suggest the use of any of these particular binders.

Compare, e.g., appellants' claim 1. Polyvinyl alcohol is not a water-soluble binder in accordance with appellants' claim 1. For example, polyvinyl alcohol is not an acetalized polyvinyl alcohol such as polyvinyl butyral (PVB). See, e.g., appellants' Example 4.

In the rejection, it is argued that the claims are considered product-by process claims due to the recitation of strongly beaten pulps with a degree of beating of 15 °SR to 90 °S. It is unclear what is intended by this assertion. The recitation of strongly beaten pulps with a

degree of beating of 15 °SR to 90 °S merely describes the material used to make the paper. In other words, this recitation only characterizes the starting material as a product-by-process. The overall subject matter claimed is clearly a product, i.e., a paper impregnated with a specific impregnating liquor.

For the reason discussed above, the rejection fails to establish that the disclosure of Schoeller et al. describes each of the features recited in appellants' claim 1. For example, Schoeller et al. do not disclose a paper impregnated with a water-soluble binder and, in particular, do not disclose a paper impregnated with a water-soluble binder selected from ethylene-vinyl alcohol copolymers, acetalized ethylene-vinyl alcohol copolymers, acetalized polyvinyl alcohols, polyvinyl butyrals, cationically modified polyvinyl alcohols containing silanol groups, acetalized cationically modified polyvinyl alcohols containing acetalized silanol groups, polyvinyl alcohols containing carboxyl groups, and mixtures thereof.

In view of the above remarks, it is respectfully submitted that the disclosure of Schoeller et al. fails to anticipate appellants' claimed invention. Reversal of the rejection is respectfully requested.

### **III. Claim 3**

Appellants' claim 3 recites that the impregnating liquor contains water-insoluble polymers in dispersion, the polymers being selected from the group comprising polyacrylonitriles, polyacrylates, polyvinyl acetates and polystyrene-polyacrylate copolymers.

As discussed above, with regards to the claimed impregnation with an impregnating liquor containing a binder system of 80 to 100 parts by mass of water-soluble binders and 20 to 0 parts by mass of water-insoluble polymers in dispersion, the rejection relies on the disclosure by Schoeller et al. in Example 3 regarding surface-sizing a paper with a solution containing 3.45% by weight polyvinyl alcohol, 4% by weight  $\text{CaCl}_2 \times 2\text{H}_2\text{O}$  and 0.53% by weight of fluorescent bleaching agent. This solution does not contain polymers in dispersion as recited in appellants' claim 3 nor is there any rationale presented in the rejection to explain why one of ordinary skill in the art would modify this surface-sizing solution of Schoeller et al. to contain such polymers in dispersion.

In view of the above remarks, it is respectfully submitted that the disclosure of Schoeller et al. fails to anticipate appellants' claimed invention as recited in claim 3.



Reversal of the rejection is respectfully requested.

#### **IV. Claims 9, 10, and 17**

Appellants' claims 9, 10, and 17 recite, respectively, that the impregnating liquor contains a crosslinking agent, that the crosslinking agent is glyoxal, and that the concentration of the crosslinking agent in the impregnating liquor is 2 to 15 mass percent, based on the total quantity of binder and crosslinking agent.

As discussed above, with regards to the claimed impregnation with an impregnating liquor containing a binder system of 80 to 100 parts by mass of water-soluble binders and 20 to 0 parts by mass of water-insoluble polymers in dispersion, the rejection relies on the disclosure by Schoeller et al. in Example 3 regarding surface-sizing a paper with a solution containing 3.45% by weight polyvinyl alcohol, 4% by weight  $\text{CaCl}_2 \times 2\text{H}_2\text{O}$  and 0.53% by weight of fluorescent bleaching agent. This solution does not contain a crosslinking agent as recited in appellants' claims 9, 10, and 17, nor is there any rationale presented in the rejection to explain why one of ordinary skill in the art would modify this surface-sizing solution of Schoeller et al. to contain such a crosslinking agent.

In view of the above remarks, it is respectfully submitted that the disclosure of Schoeller et al. fails to anticipate appellants' claimed invention as recited in claims 9, 10, or 17. Reversal of the rejection is respectfully requested.

#### **V. Claims 11, 18, and 19**

Appellants' claims 11, 18, and 19 recite, respectively: that the application weight of the impregnating liquor, calculated as dry substance, is 0.3 to 1.5  $\text{g/m}^2$  per side; that the concentration of the impregnating liquor is between 2 and 15 mass percent of dry substance; and that the concentration of the impregnating liquor is between 5 and 7.5 mass percent of dry substance.

As discussed above, with regards to the claimed impregnation with an impregnating liquor containing a binder system of 80 to 100 parts by mass of water-soluble binders and 20 to 0 parts by mass of water-insoluble polymers in dispersion, the rejection relies on the disclosure by Schoeller et al. in Example 3 regarding surface-sizing a paper with a solution containing polyvinyl alcohol,  $\text{CaCl}_2 \times 2\text{H}_2\text{O}$  and fluorescent bleaching agent. This solution is

used for surface-sizing, not impregnation. Thus, Schoeller et al. provide no suggestion of an application weight of impregnating liquor or the concentration of an impregnating liquor.

In view of the above remarks, it is respectfully submitted that the disclosure of Schoeller et al. fails to anticipate appellants' claimed invention as recited in claims 11, 18, or 19. Reversal of the rejection is respectfully requested.

#### **VI. Claim 22**

Appellants' claim 22 recites that the paper has a penetration resistance to fats and oils of greater than 1800 s as determined by the Tappi T454 test method. Schoeller et al. make no mention of the penetration resistance to fats and oils exhibited by their disclosed photographic support paper. As discussed above, to readily absorb the water-based inks, a photographic paper will need to be hydrophilic. Conversely, fat and oil penetration resistant paper should be hydrophobic in order to withstand the hydrophobic fat and oil. Thus, Schoeller et al.'s disclosure, directed towards producing a base paper for use in photographic supports, does not suggest taking steps to render the paper more hydrophobic in order to be resistant to fat and oil penetration.

In view of the above remarks, it is respectfully submitted that the disclosure of Schoeller et al. fails to anticipate appellants' claimed invention as recited in claim 22. Reversal of the rejection is respectfully requested.

#### **VII. Rejection under 35 USC 103(a) in view of Schoeller et al.**

Claims 1-4, 7, 9-11, 17-19, and 22-26 are rejected as being obvious in view of Schoeller et al. (EP 0 545 043).

This rejection also, as presented in the Final Office Action issued December 29, 2011, was applied against withdrawn claims 12-16. In the Advisory Action issued April 6, 2011, the Examiner acknowledged that withdrawn claims 12-16 should not have been included in the rejection.

The disclosure of Schoeller et al. is discussed above. The rejection as presented in the Final Office Action and restated in the Advisory Action provides no rationale as to why one of ordinary skill in the art would modify the disclosure of Schoeller et al. in such a manner as to arrive at a paper in accordance with appellants' claimed invention.

The only comment in the rejection regarding obviousness is the following conclusory argument:

“In the event any differences can be shown for the product of the product-by-process claims 1-4, 7, 9-19, 22-26, as opposed to the product taught by the reference Schoeller, such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results; see also *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985).”

This conclusion does not identify any differences between the claimed product and the product disclosed by Schoeller et al. Moreover, this conclusion provides no reasoning as to why such differences would be obvious, but simply states that they would be the result of routine modification without discussing how or why one would subject the Schoeller et al. product to routine modification.

In the rejection, it is argued that the claims are considered product-by process claims due to the recitation of strongly beaten pulps with a degree of beating of 15 °SR to 90 °S. As discussed above, this recitation merely describes the material used to make the paper. In other words, this recitation only characterizes the starting material as a product-by-process. The overall subject matter claimed is clearly a product, i.e., a paper impregnated with a specific impregnating liquor.

Product-by-process claims are discussed in MPEP § 2113. Quoting *In re Thorpe*, MPEP § 2113 states:

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process."

In the instant case, Schoeller et al. disclose pulps with a degree of beating within the claimed range of 15 °SR to 90 °SR. Thus, one could conclude that pulps recited in the claims read on the pulps disclosed in the prior art.

However, the rejection does not demonstrate how the resultant claimed paper made from such pulps is the same or obvious from the resultant prior art paper, particularly when the prior art does not disclose or suggest impregnating the prior art paper with a water-soluble

binder in accordance with the claimed invention.

As discussed in MPEP § 2113, in *Thorpe* the product-by-process claim was directed to a novolac color developer. The difference between the process of the product-by-process claim and process used in prior art was that in e process of the product-by-process claim a metal oxide and carboxylic acid were added as separate ingredients instead of adding the pre-reacted metal carboxylate. This did product of the not, however, change the end product since the product-by-process claim and the prior art product both contained the metal carboxylate.

Conversely, the paper claimed in appellants' claims is impregnated with a water-soluble binder selected from ethylene-vinyl alcohol copolymers, acetalized ethylene-vinyl alcohol copolymers, acetalized polyvinyl alcohols, polyvinyl butyrals, cationically modified polyvinyl alcohols containing silanol groups, acetalized cationically modified polyvinyl alcohols containing acetalized silanol groups, polyvinyl alcohols containing carboxyl groups, and mixtures thereof. The paper disclosed by Schoeller et al. is not impregnated with such a water-soluble binder. Thus, there is no basis presented in the rejection to assert that the claimed paper is same as or obvious from the paper disclosed by Schoeller et al.

Moreover, asserting that the claims are "product-by-process" does not obviate the requisite showings for an obviousness rejection under 35 USC 103. The rejection makes the unsupported conclusion that any differences would have been obvious as a routine modification. Yet, no rationale/explanation is presented as to how routine modification of Schoeller et al.'s photographic base paper would lead one of ordinary skill in the art to a paper impregnated with a water-soluble binder in accordance with appellants' claim 1.

The rejection fails to set forth any reasoning why it would be obvious to modify the paper of Schoeller et al. to use a binder in accordance with appellants' claim 1.

In view of the above remarks, it is respectfully submitted that the disclosure of Schoeller et al. fails to render obvious appellants' claimed invention. Reversal of the rejection is respectfully requested.

### **VIII. Claim 3**

Appellants' claim 3 recites that the impregnating liquor contains water-insoluble polymers in dispersion, the polymers being selected from the group comprising polyacrylonitriles, polyacrylates, polyvinyl acetates and polystyrene-polyacrylate copolymers.

As discussed above, with regards to the claimed impregnation with an impregnating liquor containing a binder system of 80 to 100 parts by mass of water-soluble binders and 20 to 0 parts by mass of water-insoluble polymers in dispersion, the rejection relies on the disclosure by Schoeller et al. in Example 3 regarding surface-sizing a paper with a solution containing 3.45% by weight polyvinyl alcohol, 4% by weight  $\text{CaCl}_2 \times 2\text{H}_2\text{O}$  and 0.53% by weight of fluorescent bleaching agent. This solution does not contain polymers in dispersion as recited in appellants' claim 3 nor is there any rationale presented in the rejection to explain why one of ordinary skill in the art would modify this surface-sizing solution of Schoeller et al. to contain such polymers in dispersion.

In view of the above remarks, it is respectfully submitted that the disclosure of Schoeller et al. fails to render obvious appellants' claimed invention as recited in claim 3. Reversal of the rejection is respectfully requested.

#### **IX. Claims 9, 10, and 17**

Appellants' claims 9, 10, and 17 recite, respectively, that the impregnating liquor contains a crosslinking agent, that the crosslinking agent is glyoxal, and that the concentration of the crosslinking agent in the impregnating liquor is 2 to 15 mass percent, based on the total quantity of binder and crosslinking agent.

As discussed above, with regards to the claimed impregnation with an impregnating liquor containing a binder system of 80 to 100 parts by mass of water-soluble binders and 20 to 0 parts by mass of water-insoluble polymers in dispersion, the rejection relies on the disclosure by Schoeller et al. in Example 3 regarding surface-sizing a paper with a solution containing 3.45% by weight polyvinyl alcohol, 4% by weight  $\text{CaCl}_2 \times 2\text{H}_2\text{O}$  and 0.53% by weight of fluorescent bleaching agent. This solution does not contain a crosslinking agent as recited in appellants' claims 9, 10, and 17, nor is there any rationale presented in the rejection to explain why one of ordinary skill in the art would modify this surface-sizing solution of Schoeller et al. to contain such a crosslinking agent.

In view of the above remarks, it is respectfully submitted that the disclosure of Schoeller et al. fails to render obvious appellants' claimed invention as recited in claims 9, 10, or 17. Reversal of the rejection is respectfully requested.

#### **X. Claims 11, 18, and 19**

Appellants' claims 11, 18, and 19 recite, respectively: that the application weight of the impregnating liquor, calculated as dry substance, is 0.3 to 1.5 g/m<sup>2</sup> per side; that the concentration of the impregnating liquor is between 2 and 15 mass percent of dry substance; and that the concentration of the impregnating liquor is between 5 and 7.5 mass percent of dry substance.

As discussed above, with regards to the claimed impregnation with an impregnating liquor containing a binder system of 80 to 100 parts by mass of water-soluble binders and 20 to 0 parts by mass of water-insoluble polymers in dispersion, the rejection relies on the disclosure by Schoeller et al. in Example 3 regarding surface-sizing a paper with a solution containing polyvinyl alcohol, CaCl<sub>2</sub> x 2H<sub>2</sub>O and fluorescent bleaching agent. This solution is used for surface-sizing, not impregnation. Thus, Schoeller et al. provide no suggestion of an application weight of impregnating liquor or the concentration of an impregnating liquor.

In view of the above remarks, it is respectfully submitted that the disclosure of Schoeller et al. fails to render obvious appellants' claimed invention as recited in claims 11, 18, or 19. Reversal of the rejection is respectfully requested.

#### **XI. Claim 22**

Appellants' claim 22 recites that the paper has a penetration resistance to fats and oils of greater than 1800 s as determined by the Tappi T454 test method. Schoeller et al. make no mention of the penetration resistance to fats and oils exhibited by their disclosed photographic support paper. As discussed above, to readily absorb the water-based inks, a photographic paper will need to be hydrophilic. Conversely, fat and oil penetration resistant paper should be hydrophobic in order to withstand the hydrophobic fat and oil. Thus, Schoeller et al.'s disclosure, directed towards producing a base paper for use in photographic supports, does not suggest taking steps to render the paper more hydrophobic in order to be resistant to fat and oil penetration.

In view of the above remarks, it is respectfully submitted that the disclosure of Schoeller et al. fails to render obvious appellants' claimed invention as recited in claim 22. Reversal of the rejection is respectfully requested.

### **(8) CONCLUSION**

For all of the above reasons, it is urged that the decision of the Examiner finally rejecting claims 1-4, 7, 9-11, 17-19, and 22-26, on appeal, is in error and should be reversed.

Respectfully submitted,

/Brion P.Heaney/

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## **CLAIMS APPENDIX**

1. (Previously Presented): An impregnated paper with a high penetration resistance to fats and oils, comprising:

a paper produced from strongly beaten pulps with a degree of beating of 15 °SR to 90 °SR, and internally sized with alkenyl succinic anhydride and/or alkyl ketene dimers (AKD) and/or resin sizes,

wherein said paper is impregnated with an impregnating liquor which contains a binder system of 80 to 100 parts by mass of water-soluble binders and 20 to 0 parts by mass of water-insoluble polymers in dispersion,

wherein said water-soluble binders are selected from ethylene-vinyl alcohol copolymers, acetalized ethylene-vinyl alcohol copolymers, acetalized polyvinyl alcohols, polyvinyl butyrals, cationically modified polyvinyl alcohols containing silanol groups, acetalized cationically modified polyvinyl alcohols containing acetalized silanol groups, polyvinyl alcohols containing carboxyl groups, and mixtures thereof.

2. (Previously Presented): A paper according to claim 1, wherein said paper contains 0.05 to 0.3 mass percent of alkenyl succinic anhydride for internal sizing.

3. (Previously Presented): A paper according to claim 1, wherein said impregnating liquor contains water-insoluble polymers in dispersion, and said polymers in dispersion are selected from the group comprising polyacrylonitriles, polyacrylates, polyvinyl acetates and polystyrene-polyacrylate copolymers.

4. (Previously Presented): A paper according to claim 1, wherein the water-soluble binders are selected from acetalized polyvinyl alcohols, polyvinyl butyrals, cationically modified polyvinyl alcohols containing silanol groups, acetalized cationically modified polyvinyl alcohols containing acetalized silanol groups, polyvinyl alcohols containing carboxyl groups, and mixtures thereof.

7. (Previously Presented): A paper according to claim 1, wherein the water-



soluble binders additionally comprise at least one polyvinyl alcohol containing carboxyl groups and/or at least one compound selected from ethylene-vinyl alcohol copolymers, acetalized ethylene-vinyl alcohol copolymers, acetalized polyvinyl alcohols, cationically modified polyvinyl alcohols containing silanol groups, polyvinyl alcohols containing acetalized silanol groups, acetalized carboxyl groups, acetalized cationically modified polyvinyl alcohols, and polyvinyl butyral.

9. (Previously Presented): A paper according to claim 1, wherein the impregnating liquor contains a crosslinking agent.

10. (Previously Presented): A paper according to claim 9, wherein the crosslinking agent is glyoxal.

11. (Previously Presented): A paper according to claim 1, wherein the application weight of the impregnating liquor, calculated as dry substance, is 0.3 to 1.5 g/m<sup>2</sup> per side.

17. (Previously Presented): An impregnated paper according to claim 9, wherein the concentration of the crosslinking agent in the impregnating liquor is 2 to 15 mass percent, based on the total quantity of binder and crosslinking agent.

18. (Previously Presented): An impregnated paper according to claim 1, wherein the concentration of the impregnating liquor is between 2 and 15 mass percent of dry substance.

19. (Previously Presented): An impregnated paper according to claim 1, wherein the concentration of the impregnating liquor is between 5 and 7.5 mass percent of dry substance.

22. (Previously Presented): An impregnated paper according to claim 1, wherein said paper has a penetration resistance to fats and oils of greater than 1800 s as determined by the Tappi T454 test method.

23. (Previously Presented): An impregnated paper according to claim 1, wherein said paper is not treated with fluorocarbons.

24. (Previously Presented): An impregnated paper according to claim 1, wherein said paper has a wet strength of 5 to 20%, determined according to DIN ISO 3781, without wet strength improving agents being added.

25. (Previously Presented): A paper according to claim 1, wherein the water-soluble binders are selected from acetalized polyvinyl alcohols, acetalized cationically modified polyvinyl alcohols containing acetalized silanol groups, and mixtures thereof.

26. (Previously Presented): A paper according to claim 1, wherein the water-soluble binders are selected from polyvinyl butyrals and mixtures thereof.

## **EVIDENCE APPENDIX**

Koskinen et al., WO 2004/111336 (submitted with Reply file March 29, 2011).

**RELATED PROCEEDINGS APPENDIX**

Not Applicable.